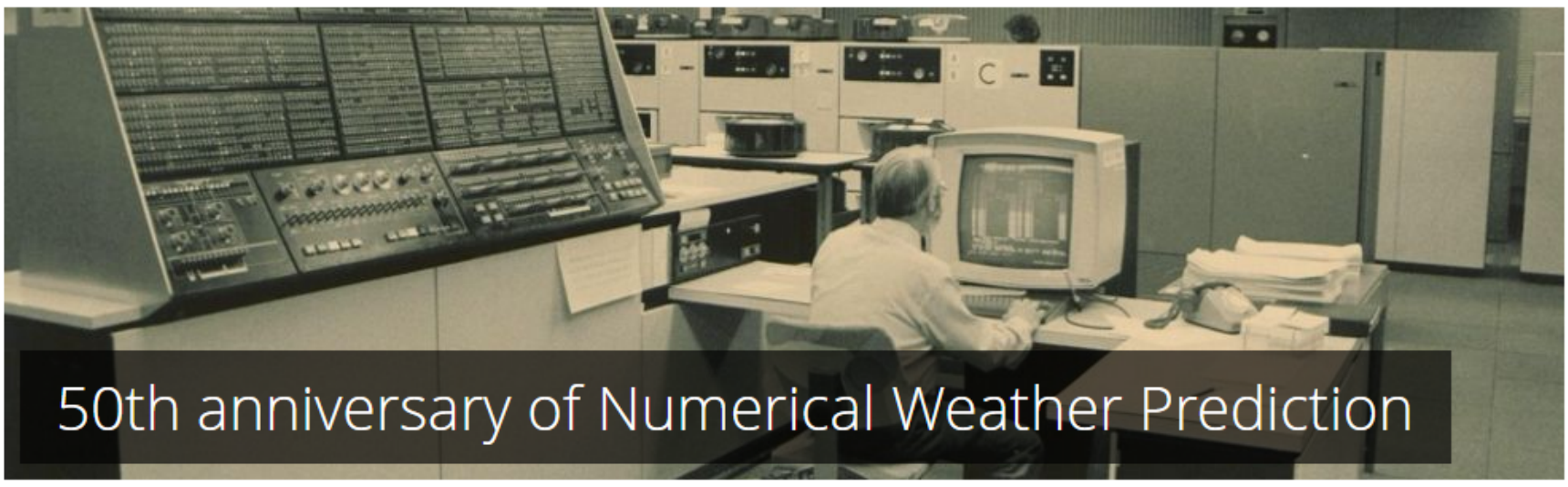
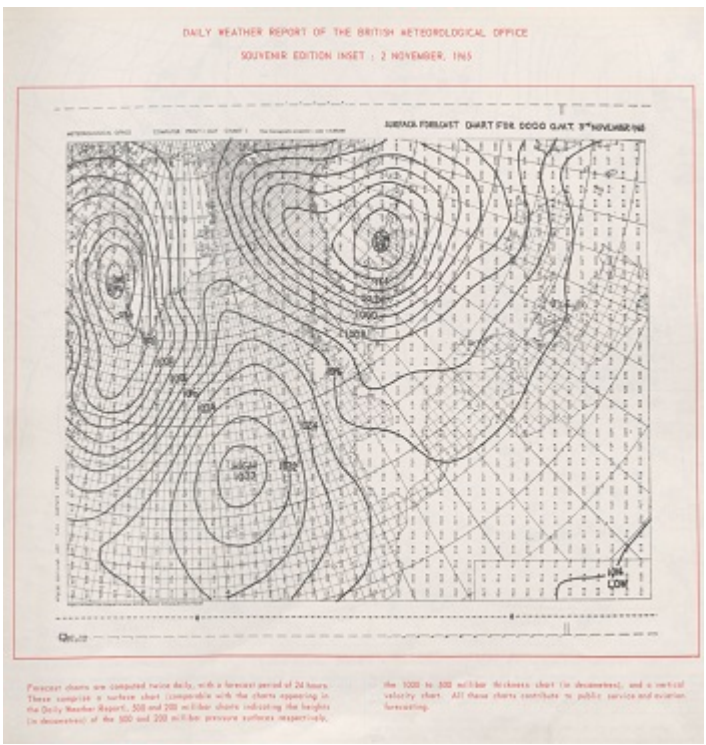


# 50th anniversary of Numerical Weather Prediction

**2 November 2015 - The Met Office has now been using numerical computer models to forecast the weather for half a century**

Today marks the 50th anniversary of the use of the Numerical Weather Prediction (NWP) system by the Met Office. It is at the heart of all weather forecasts and warnings, as well as much of the research and development undertaken to understand our weather and climate. Its beginnings in 1965 marked the transition of the Met Office into the world-leader in weather science and forecasting that it is today.


DAILY WEATHER REPORT OF THE BRITISH METEOROLOGICAL OFFICE
SOUVENIR EDITION INSET : 2 NOVEMBER, 1965
SURFACE FORECAST CHART FOR 0000 GMT 3RD NOVEMBER 65
HIGH 1033
LOW 1000
LOW
Forecast charts are computed twice daily, with a forecast period of 24 hours. These comprise a surface chart (comparable with the charts appearing in the Daily Weather Report), 500 and 200 millibar charts indicating the heights (in decametres) of the 500 and 200 millibar pressure surfaces respectively, the 1000 to 500 millibar thickness chart (in decametres), and a vertical velocity chart. All these charts contribute to public service and aviation forecasting.

NWP First forecast - 2 November1965

NWP takes the latest observations of the world's weather together with a mathematical model of the atmosphere to produce weather forecasts, the first of which was produced on 2 November 1965.

## Over the last 50 years

As weather science has advanced so our NWP systems have become more sophisticated, delivering continuing improvements in forecast skill that save lives and livelihoods and allow us to plan ahead.

Another view of KDF 9 computer, with line printer prominent in foreground. The Director-General is holding a specimen forecast output.

NWP Computer

Andy Brown, Met Office Director of Science said; "It's an amazing scientific achievement that our five day forecast is now as accurate as our one-day forecast was in the 1960s* . These improvements are of huge value to society, helping to save lives, safeguard businesses and protect critical infrastructure in the UK and further afield."

The benefits of the advancements in NWP were clearly demonstrated in the case of the St Jude's Day storm in October 2013 when warnings went out to the Government and the public five days ahead of the storm, and again throughout the winter of 2013/14, the stormiest period in the UK in at least 20 years.

## Looking to the future

There are exciting times ahead for NWP and the Met Office, not least the new supercomputer. It will be one of the fastest in the world, able to perform 23,000 trillion calculations per second once fully operational, 13 times faster than the current supercomputer. The first phase came on line in August, ahead of schedule, with the project due for completion in 2017.

There will be big improvements in NWP as more data can be processed and analysed quicker. It should enable enhanced probabilistic forecasts leading to improved risk assessment of severe weather such as heavy rainfall and gales, and it will help us provide more and more detail of what the weather will be like at the local level.

The improvements should help inform decisions on when and where to warn for severe weather through our National Severe Weather Warning Service and aid our work internationally in areas such as forecasting typhoons and disaster risk reduction in Africa and South East Asia.

We are working with the Natural Environment Research Council to transform our weather forecasting model into an environmental prediction model. This will help the UK become more resilient and better prepared for a much broader range of natural hazards, such as flooding, storm surge, drought and air quality, both today and as our climate changes.

Last updated: 5 November 2015